Having described the invention, we claim:

1. An endovascular prosthesis comprising:

a first end having a longitudinally extending central lumen and means for laterally supporting said first end;

a furcated second end including at least two branches that extend from an intersection of said furcated second end, each of said at least two branches including a longitudinal support means and a branch lumen in fluid communication with said central lumen of said first end; and

anchoring means for securing said first end within a vasculature.

2. The endovascular prosthesis of claim 1 wherein said first end has an inner surface that defines said central lumen, said inner surface facilitating non-turbulent fluid flow through said central lumen.

3. The endovascular prosthesis of claim 2 wherein said first end includes a graft layer.

4. The endovascular prosthesis of claim 3 wherein the graft layer of said first end comprises a biocompatible fabric that is formed from expanded polytetrafluoroethylene.

5. The endovascular prosthesis of claim 3 wherein said means for laterally supporting said first end is attached to the graft layer of said first end.

6. The endovascular prosthesis of claim 1 wherein said means for laterally supporting said first end comprises a radially expandable stent.

7. The endovascular prosthesis of claim 1 wherein said first end and said second end extend along a longitudinal axis and said intersection lies in a plane perpendicular to said longitudinal axis.

8. The endovascular prosthesis of claim 1 wherein each of said at least two branches has a substantially equal length.

9. The endovascular prosthesis of claim 1 wherein each of said at least two branches includes a graft layer.

10. The endovascular prosthesis of claim 9 wherein said longitudinal support means of each of said branches is attached to the graft layer of each of said branches.

11. The endovascular prosthesis of claim 1 wherein each of said longitudinal support means for said at least two branches comprises a rod, and wherein each of said rods extend substantially the length of said branches.

12. The endovascular prosthesis of claim 1 wherein said anchoring means comprises a bare stent, said bare stent extending from said first end.

13. The endovascular prosthesis of claim 12 wherein said bare stent includes wall-engaging members that prevent migration of said endovascular prosthesis within the vasculature.

14. The endovascular prosthesis of claim 13 wherein said wall-engaging members comprise pairs axially aligned barbs.

15. The endovascular prosthesis of claim 1 further comprising at least two outflow limbs, said at least two outflow limbs each having a first end and a second end, and a lumen extending between said first end and second end, said first ends of each of said at least two outflow limbs being connected to said at least two branches to allow fluid flow from said at least two branches through said outflow limbs.

16. The endovascular prosthesis of claim 15 wherein each of said at least two outflow limbs is tubular and includes a graft layer and an expandable support member, each of the expandable support members of the outflow limbs being attached to the graft layers of the outflow limbs.

17. The endovascular prosthesis of claim 16 wherein each of said first ends of said at least two outflow limbs includes a pair of axially aligned barbs, said pair of axially aligned barbs preventing distal

and proximal migration of said outflow limb when said outflow limb is connected to said branch.

18. The endovascular prosthesis of claim 15 wherein each of said first ends of said at least two outflow limbs is tapered radially outward.

19. The endovascular prosthesis of claim 15 wherein each of the second ends of said at least two outflow limbs includes an anchoring means.

20. The endovascular prosthesis of claim 15 wherein each of said second ends of said at least two outflow limbs is tapered radially outward.

21. An endovascular prosthesis comprising:

a first end having a longitudinally extending central lumen and means for laterally supporting said first end;

a furcated second end including at least three branches that extend from an intersection of said furcated second end, each of said at least three branches including a longitudinal support means and a

branch lumen in fluid communication with said central lumen of said first end; and

anchoring means for securing said first end within a vasculature.

22. The endovascular prosthesis of claim 21 wherein said first end has an inner surface that defines said central lumen, said inner surface facilitating non-turbulent fluid flow through said central lumen.

23. The endovascular prosthesis of claim 22 wherein said first end includes a graft layer.

24. The endovascular prosthesis of claim 23 wherein the graft layer of said first end comprises a biocompatible fabric that is formed from expanded polytetrafluoroethylene.

25. The endovascular prosthesis of claim 23 wherein said means for laterally supporting said first end is attached to the graft layer of said first end.

26. The endovascular prosthesis of claim 21 wherein said means for laterally supporting said first end comprises a radially expandable stent.

27. The endovascular prosthesis of claim 21 wherein said first end and said second end extend along a longitudinal axis and said intersection lies in a plane perpendicular to said longitudinal axis.

28. The endovascular prosthesis of claim 21 wherein each of said at least three branches has a substantially equal length.

29. The endovascular prosthesis of claim 21 wherein each of said at least three branches includes a graft layer.

30. The endovascular prosthesis of claim 29 wherein said longitudinal support means of each of said branches is attached to the graft layer of each of said branches.

31. The endovascular prosthesis of claim 21 wherein each of said longitudinal support means for

said at least three branches comprises a rod, and wherein each of said rods extend substantially the length of said branches.

32. The endovascular prosthesis of claim 21 wherein said anchoring means comprises a bare stent, said bare stent extending from said first end.

33. The endovascular prosthesis of claim 32 wherein said bare stent includes wall-engaging members that prevent migration of said endovascular prosthesis within the vasculature.

34. The endovascular prosthesis of claim 33 wherein said wall-engaging members comprise pairs axially aligned barbs.

35. The endovascular prosthesis of claim 21 further comprising at least three outflow limbs, said at least three outflow limbs each having a first end and a second end, and a lumen extending between said first end and second end, said first ends of each of said at least three outflow limbs being connected to said at least three branches to allow fluid flow from

said at least three branches through said outflow limbs.

36. The endovascular prosthesis of claim 35 wherein each of said at least three outflow limbs is tubular and includes a graft layer and an expandable support member, each of the expandable support members of the outflow limbs being attached to the graft layers of the outflow limbs.

37. The endovascular prosthesis of claim 36 wherein each of said first ends of said at least three outflow limbs includes a pair of axially aligned barbs, said pair of axially aligned barbs preventing distal and proximal migration of said outflow limb when said outflow limb is connected to said branch.

38. The endovascular prosthesis of claim 35 wherein each of said first ends of said at least three outflow limbs is tapered radially outward.

39. The endovascular prosthesis of claim 35 wherein each of the second ends of said at least three outflow limbs includes an anchoring means.

40. The endovascular prosthesis of claim 35 wherein each of said second ends of said at least three outflow limbs is tapered radially outward.

41. An endovascular prosthesis comprising:

a trunk portion having a first end, a second end, a trunk lumen extending between said first end and said second end, said trunk portion including means for laterally supporting said trunk portion;

a furcated portion connected to said second end of said trunk portion, said furcated portion including at least two branches extending from an intersection of said furcated portion, each of said at least two branches having longitudinal support means and a branch lumen in fluid communication with said trunk lumen; and

anchoring means connected to said first end of said trunk portion, said anchoring means securing said first end within a vasculature.

42. The endovascular prosthesis of claim 41 wherein said trunk portion has an inner surface that defines said trunk lumen, said inner surface

facilitating non-turbulent fluid flow through said trunk lumen.

43. The endovascular prosthesis of claim 41 wherein said trunk portion includes a graft layer, said means for laterally supporting said trunk portion being attached to the graft layer of said trunk portion.

44. The endovascular prosthesis of claim 41 wherein said means for laterally supporting said trunk portion comprises a radially expandable stent.

45. The endovascular prosthesis of claim 41 wherein said trunk portion and said furcated portion extend along a longitudinal axis and said intersection lies in a plane perpendicular to said longitudinal axis.

46. The endovascular prosthesis of claim 41 wherein each of said at least two branches has a substantially equal length.

47. The endovascular prosthesis of claim 41 wherein each of said at least two branches includes a

graft layer, said longitudinal support means of each of said branches being attached to the graft layers of said branches.

48. The endovascular prosthesis of claim 41 wherein each of said longitudinal support means for said at least two branches comprises a rod, each of said rods extending substantially the length of said branches.

49. The endovascular prosthesis of claim 41 wherein said anchoring means comprises a bare stent, said bare stent permitting radial flow of fluids through said bare stent.

50. The endovascular prosthesis of claim 41 further comprising at least two outflow limbs, said at least two outflow limbs each having a first end and a second end, and a lumen extending between said first end and second end, said first ends of each of said at least two outflow limbs being connected to said at least two branches to allow fluid flow from said at least two branches through said at outflow limbs.

51. The endovascular prosthesis of claim 50 wherein each of said at least two outflow limbs is tubular and includes a graft layer and an expandable support member attached to the graft layer of said outflow limb.

52. The endovascular prosthesis of claim 50 wherein each of said first ends of said at least two outflow limbs includes a pair of axially aligned barbs, said pair of axially aligned barbs preventing distal and proximal migration of said outflow limb when said outflow limb is connected to said branch.

53. The endovascular prosthesis of claim 50 wherein each of said first ends of said at least two outflow limbs is tapered radially outward.

54. The endovascular prosthesis of claim 50 wherein each of the second ends of said at least two outflow limbs includes an anchoring means.

55. The endovascular prosthesis of claim 50 wherein each of said second ends of said at least two outflow limbs is tapered radially outward.

56. The endovascular prosthesis of claim 50 wherein said furcated portion includes at least three branches and said endovascular prosthesis includes at least three outflow limbs.

57. An endovascular prosthesis comprising:

a trunk portion having a first end, a second end, a trunk lumen extending along a first longitudinal axis between said first end and said second end, said trunk portion including a radially expandable tubular stent that extends substantially the length of said trunk portion;

a furcated portion connected to said trunk portion and extending along said first longitudinal axis, said furcated portion including at least two branches extending from an intersection lying in a plane perpendicular to said first longitudinal axis, each of said at least two branches having a rod longitudinally extending substantially the length of each of said at least two branches and a branch lumen in fluid communication with said trunk lumen of said trunk portion; and

anchoring means connected to said first end of said trunk portion, said anchoring means for securing said first end within a vasculature.

58. The endovascular prosthesis of claim 57 wherein said trunk portion includes a graft layer, said radially expandable tubular stent being attached to the graft layer of the trunk portion.

59. The endovascular prosthesis of claim 57 wherein each of said at least two branches has a substantially equal length.

60. The endovascular prosthesis of claim 57 wherein each of said at least two branches includes a graft layer, said rod of said branches being attached to the graft layer of each of said at least two branches.

61. The endovascular prosthesis of claim 57 further comprising at least two outflow limbs, said at least two outflow limbs each having a first end and a second end, and a lumen extending between said first end and second end, said first ends of each of said at

least two outflow limbs capable of being connected to said at least two branches to allow fluid flow from said at least two branches through said at outflow limbs.

62. The endovascular prosthesis of claim 61 wherein each of said at least two outflow limbs is tubular and includes a graft layer and an expandable support member attached to the graft layer.

63. The endovascular prosthesis of claim 61 wherein each of said first ends of said at least two outflow limbs includes a pair of axially aligned barbs, said pair of axially aligned barbs preventing distal and proximal migration of said outflow limb when said outflow limb is connected to said branch.

64. The endovascular prosthesis of claim 61 wherein each of said first ends of said at least two outflow limbs is tapered radially outward.

65. The endovascular prosthesis of claim 61 wherein each of the second ends of said at least two outflow limbs includes an anchoring means.

66. The endovascular prosthesis of claim 61 wherein each of said second ends of said at least two outflow limbs is tapered radially outward.

67. The endovascualar prosthesis of claim 61 whrerein said furcated portion includes at least three branches and said endovascular prosthesis includes at least three outflow limbs.

68. A method of constructing an endovascular prosthesis with at least three outflow branches, said method comprising the steps of:

providing at least two grafts, each of said at least two grafts having a first end, a second end, and a lumen extending longitudinally between the first end and the second end, said first end of each of said at least two grafts including means for laterally supporting said first end, said second end of each of said at least two grafts including means for longitudinally supporting said second end;

deforming said first end of each of said at least two grafts to produce a connection surface on each of said at least two grafts; and

joining said connection surfaces of each of said at least two grafts to form an endovascular prosthesis with at least two outflow lumens that are in fluid communication with a central lumen.

69. A method of constructing an endovascular prosthesis with at least two outflow branches, said method comprising the steps of:

providing at least two grafts, each of said at least two grafts having a first end, a second end, and a lumen extending longitudinally between the first end and the second end, said first end of each of said at least two grafts including an expandable stent disposed between inner and outer layers of a flexible material, said second end of each of said at least two grafts including a longitudinally extending support rod disposed between inner and outer layers of flexible materials;

removing a portion of said first end of each of said at least two grafts to produce a connection surface on each of said at least two grafts; and

joining said connection surfaces of each of said at least two grafts to form an endovascular prosthesis with at least two outflow lumens.

70. A method of constructing an endovascular prosthesis with at least two outflow branches, said method comprising the steps of:

providing a main graft having a first end, a second end and a main lumen extending longitudinally between said first end said second end of said main graft, said main graft including means for laterally supporting said main graft,

providing at least two branch grafts, each of said at least two grafts having a first end, a second end, and a lumen extending longitudinally between the first end and the second end of each of said branch grafts, each of said at least two branch grafts including means for longitudinally supporting each of said at least two branch grafts; and

connecting the first ends of each of said at least two branch grafts to the second end of said main graft to form an endovascular prosthesis with at least two outflow lumens that are in fluid communication with a central lumen.

71. A method of treating an abdominal aortic aneurysm that extends from a portion of the aorta

caudal the renal arteries to the aorta iliac junction, said method comprising the steps of:

providing a first stent-graft assembly, said first stent-graft assembly including a first end, a furcated second end, and an anchoring means for securing said first end within the aorta, said first end having a longitudinally extending central lumen and a means for laterally supporting said first end, said furcated second end including four branches that extend from an intersection of said furcated second end, each of said branches including a longitudinal support means and a branch lumen in fluid communication with said central lumen of said first end;

deploying said first stent-graft assembly within the aorta so that the anchoring means extends across the renal artery junction of the aorta and the furcated second end extends into the abdominal aortic aneurysm;

providing four outflow limbs, said four outflow limbs each having a first end and a second end, and a lumen extending between said first end and second end; and

connecting said first ends of each of said outflow limbs to said four branches of said furcated

second end of said stent-graft assembly and said second ends of each of said outflow limbs to branch arteries of the aorta to allow blood flow from said first stent-graft through said outflow limbs to said branch arteries.

72. The endovascular prosthesis of claim 71 wherein said first end and said second end of said first stent-graft assembly extend along a longitudinal axis and said intersection lies in a plane perpendicular to said longitudinal axis.

73. The method of claim 71 wherein said said four branches have a substantially equal length.

74. The method of claim 73 wherein said anchoring means comprises a bare stent, said bare stent being tubular and permitting radial flow of blood from said renal arteries through said bare stent.

75. The method of claim 73 wherein the first ends of said four outflow limb being connected to separate branches of said furcated second end, each of said second ends of said outflow limbs being connected to four separate branch arteries of the aorta.